

Thesis title: Assessment of home-grown school feeding program on school enrolment, performance, attendance and nutrition status of public elementary school pupils in Nigeria.

The following comments were made by the first external (Prof. Harald Kaechele) during the three times review process. The modified thesis now includes the following changes as structured in the detailed description of how the comments were addressed in the main text of the thesis.

Dashboard: external review

External Reviewer	Comments	Section of the thesis where comments are addressed
First external reviewer (Prof. Harald Kaechele)	You are a bit hopping between global and local levels and food security and education aspects. Maybe you may restructure a bit while at first presenting a global perspective and then step by step narrowing down to the Nigerian case. And you might find a better way to properly present the link between food security and education without mixing it up.	The author appreciates this feedback and has addressed this comment under 1.0 – Background of the study (Pages 1 - 2) as reiterated below: The background of the study was restructured from a global level to Africa, then to Sub-Saharan Africa, then to Nigeria, and finally to the study area. The introduction now reads as follows; “The school feeding program (SFP) is the world's largest and most widespread social safety net, which provides children with meals, snacks, or take-home rations, reaching an estimated 388 million children across 163 countries (WFP, 2020). However, the concept of the benefit of these SFPs varies across countries on the basis of their developmental indices or status. While the school meal is a source of nutritious meals in developed countries to tackle the rise in overweight and obesity among young children (Belot and James, 2011), in developing countries school feeding programs generally aim to effectively address short-term hunger, improve nutrition, and improve school children's cognitive capacities by delivering free meals in schools (WFP, 2013; Munthali et al., 2014). Many of the school feeding programs in developing countries are typically seen as poverty and hunger alleviation measures (Jomaa et al., 2011; WHO/FAO, 2010; Zenebe et al., 2018). (See page 1).
	In addition to my last comment: After narrowing down from a children’s	Section 1.0 – Background of the study Africa stands behind the level of achievements in the context of child poverty. The number of children with stunting is declining in all regions of the world except Africa (FAO et al., 2021).

	<p>point of view you have to narrow down from a food production perspective as well as your program intends to benefit two marginalized groups - children as well as smallholders if I got it right. The issue of food contamination is an additional one. Super interesting, however, need a bit more content to make it completely understandable for external “non-experts”.</p>	<p>Half of Africa's countries are classified as low-income; one-third are classified as lower middle-income and only eight countries are classified as upper-middle-income (World Bank, 2020b). Virtually all African countries adopted the Home-Grown School Feeding (HGFSF) type of feeding program (World Bank, 2020b; African Union, 2021). In this context, a double side approach, meaning improving pupils’ school enrollment and alleviating hunger among children and supporting smallholder farmers by including themes into the SFP in order to improve incomes and household food security. The SFP in Africa is estimated to feed more than 65 million children across 39 countries in the continent, a significant increase from 38.4 million in 2013 (World Bank, 2020b; African Union, 2021). In more than a decade of implementation, among the 65 million children benefiting the SFP about 53 million beneficiaries are in Sub-Saharan Africa, these figures include 17 million children receiving World Food Program (WFP) school meals (WFP, 2020)”. (See pages 1-2)</p>
	<p>This enumeration of catchwords is not convincing. Please rephrase. Why not start with a global perspective, common to the Nigerian case and then narrow down the Nigerian case to HGFSF as the most specific issue that became the core of your thesis? I generally suggest following a</p>	<p>Section 2.0 – Literature review The author has addressed this by restructuring Section 1.3 - Literature review, beginning with the school feeding program as it relates to pupil educational achievement, nutrition, smallholder farmers and finally, caterer (Pages 7-13).</p>

	deductive approach – from the general to the specific.	
	<p>Please check whether the sub-structure in this chapter is convincing. Some of the sub-chapters are extremely short others might be merged due to the same content. That are the sub-chapters of enrollment, attendance, academic performance and effect of duration.</p>	<p>Thank your comment, further information have been added to the following sub-chapters of enrollment, attendance, academic performance and effect of duration. As you can see below</p> <p>2.1.1 School feeding program and pupils school enrolment</p> <p>There are a series of indicators for assessing output indicators in the impact assessment. The first indicator of assessing pupils’ educational achievement is the school enrolment rate. The application of SFP could increase school enrolment since access to food influences the household's decision to send their pupils to a school who would not have otherwise been enrolled. In the perception of the household the "net benefits of participating in the program exceed the gap between direct and opportunity cost of schooling and the expected benefit of schooling" which provides a stimulus for them to enrol their children (Adelman et al., 2008). The lack of food raises the need to work and generate income instead of going to school. Drake et al. (2012) found that one-tenth of the world's poorest children are less likely to participate in school because of the lack of income and the need to work, perpetuating intergenerational poverty cycles.</p> <p>Several studies have investigated the effect of SFP on children's school enrolment around the world with contradicting results. Some studies, for example, in Nigeria, Peru, Mali, Sri Lanka, Ghana, Bangladesh, and Ethiopia found an increase in the number of pupils enrolled in SFP (Metwally et al., 2020; Taylor and Ogbogu, 2016; Tijjani et al., 2017; Masset and Gelli, 2013; He, 2009; Sulemana et al., 2013; Zenebe et al., 2018; Alderman and Bundy, 2012). Other studies conducted in Kenya, Ethiopia, Laos, for example, found no evidence of an increase in the number of children enrolled in schools that implemented school feeding programs (Meme et al., 1998; Dheressa, 2011; Buttenhein et al., 2011). (see pages 7-8).</p>

2.1.2 School feeding program and pupils school attendance

School attendance is the second indicator of assessing educational achievement in this study. School attendance is defined as attendance at any regular accredited educational institution or program, public or private, for organized learning at any level of education at the time of the census. Since pupils can only get meals at school, it is thought that school meals can help raise class attendance by motivating them to attend school. Knowing educational development is crucial for growth, the absence of pupils from the school environment has the potential to cause or exacerbate deviations in normal development (Heyne et al. 2019). Nonattendance has a negative impact on learning and achievement (Carroll, 2010), and higher rates of nonattendance are linked to lower achievement levels (Steward et al., 2008; Gottfried, 2014). Poor attendance at school can lead to pupils dropping out, who then become juvenile offenders, triggering the school-to-prison pipeline and putting an end to their education (Garry, 1996).

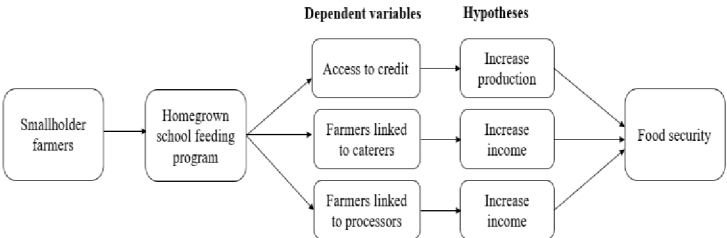
School feeding programs have also been shown to reduce absenteeism, increasing attendance. On one hand, program evaluation findings from Nigeria, the United States, Chile, the United Kingdom, Ghana, Ethiopia, and Laos show a positive relationship between the SFP and pupils' school attendance rates (Falade et al., 2012; Desalegn et al. 2021; Tijjani et al., 2017; Hinrichs, 2010; Wang and Fawzi, 2020; McEwan, 2013; Belot and James, 2011; Gelli et al., 2016; Zenebe et al., 2018; Alderman and Bundy, 2012). On the other hand, studies in Ethiopia and Burkina Faso have confirmed that there has been no significant increase in school attendance in schools participating in the feeding program (Kazianga et al., 2010). A study examined the effects of an SFP versus no SFP on student attendance in Senegal provides found that students who did not receive daily school meals were twice as likely to miss class. (Desalegn et al. 2021). Adekunle and Ogbogu (2016) conducted a study in Nigeria on the effect of SFP on pupils' school attendance revealed a 69% increase in school attendance using pre and post intervention outcome. Furthermore, in a study conducted in Burkina Faso using a pre-and post-intervention method of analysis, Nikiema (2019) discovered that attendance increased by 6% for girls and 8.4% for boys.

2.1.3 School feeding program and pupils' academic performance

The academic performance is based on various indicators such as the level of achievements on Math and English test scores, students GPA and other more combined indicators. Greenhalgh et al. (2008) explain that school feeding programs help with nutritional deficiencies which improve pupils' calorie intake and raise literacy levels as a means of escaping the cycle of poverty. A number of other studies, including Adekunle and Ogbogu (2016) and Falade et al (2012), have demonstrated how SFPs help to improve pupils' IQs. Several studies conducted across the globe found the mediation effect of the attendance rate. Attendance rate is an additional important factor that influences the academic performance of pupils (Stephanie et al., 2011; Morrissey et al., 2014; Durán-Naruck, 2008; Lehr et al., 2004; Sekiwu et al., 2020). This is made possible when the school meal serves as a motivator for pupils to attend school, which reflects in their performance.

Even in populations who are not severely malnourished, breakfast consumption has been shown to improve cognitive function and educational outcomes. It is known that eating a healthy diet can enhance cognition and academic performance (Littlecott et al., 2015). The provision of school food for children increases pupils' academic performance, studies were conducted in different geographical locations such as Nigeria, the United Kingdom, Ethiopia, Ghana, Burkina Faso, Kenya, India, and Bangladesh. Various studies reported that school feeding programs significantly improved child academic performance (Tijjani et al., 2017; Belot and James 2011; Zenebe et al., 2018; Gelli et al., 2016; Kazianga et al., 2010; Desalegn et al., 2021; Lawson 2012; Dreze and Goyal, 2003; Kristjansson et al., 2007; Chepkwony et al., 2013). For example, children in SFP participating schools were compared to children in non-SFP participating schools in Ethiopia based on an aggregate academic score of ten subjects. Children in SFP schools scored 2.3 percent higher overall than students who did not participate in the meal program (Desalegn et al., 2021). Similarly, Hochfeld (2016) using pre and post-intervention analysis discovered a positive change in competency scores for all grades in his study conducted in South Africa. The

		<p>percentage of improvement ranged from 3.75 % for students in Grade 3 to 25.79 % for students in Grade R.</p> <p>Duration of the feeding program</p> <p>On the contrary, several studies conducted in Ghana, Malawi, India, Burkina Faso, and Kenya found no significant effect between the school feeding program and pupils academic performance (Gelli et al. 2019; Afridi et al., 2014; Obonyo, 2009; Kazianga et al., 2009). This is considerable evidence that raise the bases for hypotheses on the effect of SFP duration on the academic performance. Academic performance is a product of cognitive ability, health and consistent school attendance which can come from the school meal motivation. Thus, studies in India and Zambia reported that prolonged exposure (the longer the duration) to school feeding programs has a robust positive effect on learning achievement (Chakraborty and Jayaraman, 2019; Singh et al., 2014). However, Afridi et al. (2014) reported that upper primary school pupils (grades 6–8) who benefited from midday school meals for four months had no improvement in academic test scores.</p>
	<p>Sub-chapters are very short as well. By the way II: nutrition status is the dependent variable in this chapter</p>	<p>This comment has been addressed in Section 2.2 - School feeding program and pupils' nutritional status (Pages 10-11) by combining some of the sub-chapters.</p> <p>2.2 School feeding program and pupils' nutritional status</p> <p>Sub-Saharan Africa's malnutrition situation is characterized by the double burden of malnutrition (DBM), with a high prevalence of undernutrition and rising obesity, as well as diet-related noncommunicable diseases (NCDs) (WHO, 2017, 2018). Decades ago, school feeding programmes (SFPs) were introduced to address food nutrient imbalances, obesity, being underweight and stunting (Gelli et al., 2016; Zenebe et al. 2018).</p> <p>The authors' studies on the effect of SFPs on children's nutrition are contradictory in terms of results. For instance, Alderman and Bundy (2012) and Zenebe et al. (2018) reported an improvement in beneficiary pupils' nutrition status. Similarly, SFPs appear to promote macronutrients effectively and micronutrient adequacy in the diet (Jomaa et al., 2011), which</p>

		<p>helps to alleviate anemia and support improved cognition (Abizari et al. 2014; Finkelstein et al., 2015). On the other hand, a minor number of studies, Abizari et al. (2014) reported a negative effect on beneficiary pupils. A third group of studies report no impact of SFP on food nutrition (Gelli et al., 2019). Further information has been added on pages 12-14</p>
	<p>In your thesis, there are a few groups to be addressed: at least pupils, smallholders and vendors (reduce contamination). Does your theory cover all three groups?</p>	<p>Section 3.0 – Theoretical framework underpinning the effect of school on smallholder farmers’ household food security and that of food vendors’ food safety knowledge has been added on. Detail explanation of the theoretical framework can be seen on pages 22-23.</p> <p>3.2 The theoretical framework supporting the connection of smallholders with caterers and processors (see page 21).</p>  <pre> graph LR SF[Smallholder farmers] --> HSGP[Homegrown school feeding program] HSGP --> AC[Access to credit] HSGP --> FLC[Farmers linked to caterers] HSGP --> FLP[Farmers linked to processors] AC --> IP[Increase production] FLC --> II1[Increase income] FLP --> II2[Increase income] IP --> FS[Food security] II1 --> FS II2 --> FS </pre> <p>3.3. Theoretical framework underpinning food safety KAP in the HGSF (see page 22).</p>

		<pre> graph TD A([Demographic characteristics & Food safety Information sources]) --> B[Food safety knowledge] A --> C[Food safety attitude] A --> D[Food safety practice] B --> C C --> D B --> D </pre>
	<p>What is the dependent variable in this regard? Food security status because of additional income generation, food security of children of smallholders, income generation of smallholders???</p>	<p>The dependent variable is the household food security status of the smallholder farmers. Using food consumption score (FCS) indicators</p>

	<p>After being deep in specific issues of HGSF you now switch to a meta-level general perspective. Please see my comments on the DEDUCTIVE proceeding. By the way: The overall headline of 1.6 is the livelihood of smallholders.</p>	<p>This comment has been addressed in Section 2.3 – Food security in Nigeria by restructuring the comment in a deductive method. (See page 13)</p> <p>2.3 Impact of HGSF on Smallholders' Food Security in Northeastern Nigeria</p> <p>Homegrown School Feeding programs is implemented by various governments around the world, some with the assistance of partners such as the World Food Programme, the World Bank, and other donor agencies, are increasingly providing assured markets for smallholder farmers (WFP, 2021). The majority of African countries report linking smallholder farmers, either individually or collectively, to school feeding programs. The ultimate goal of this link is to improve farmers' household food security (WFP, 2021; Soares et al., 2017; Masset and Gelli, 2013). By linking local agricultural production to school meals, Home Grown School Feeding (HGSF) programmes multiply benefits for rural communities. They can improve nutrition, boost local economies, improve smallholders' food security status and develop government capacity. Due to varied country contexts, each HGSF programme is unique, but are generally characterized by the incorporation of local food purchases into government-run school feeding programmes (WFP, 2021).</p>
	<p>In this chapter you use sub-headings in italic rather than sub-chapters to structure – I like this style much more rather than very short chapters. Please make it consistent throughout the whole thesis.</p>	<p>Sub-section 2.3.1 – Empirical studies on linking smallholder farmers with food vendors and processors. Further information has been added to each subheading as requested by the examiner. (please see pages 13-14).</p> <p>2.3.1 Empirical studies on linking smallholder farmer with food vendors and processors</p> <p>Farmers access to credit</p> <p>Several studies conducted in Indonesia, Malawi, Ghana, Chile, and Brazil on the effect of linking smallholder farmers with caterers in HGSF revealed that there is a significant positive effect on</p>

the farmer household food security status, this is achieved by providing a reliable market for farmers to sell their product with fewer losses (Soares et al., 2017; Singh and Fernandes et al., 2018; Masset and Gelli, 2013; Sumberg and SabatesWheeler, 2011; Morgan et al., 2007; Espejo et al., 2009). By implementing these strategies, farmers can benefit from increased market opportunities and stable demand, while caterers can access fresh, high-quality ingredients directly from local sources. This collaboration contributes to the development of local food systems, fosters sustainability, and supports the growth of both farmers and caterers (Singh and Fernandes et al., 2018; Masset and Gelli, 2013).

Farmers linked to processors

Studies conducted in Chile, Brazil, Tanzania, Ghana, Chad and Ethiopia have reported that creating a linkage between smallholder farmers and processors (value chain) reduces farmer losses and gives a good return, which improves farmers' household food security status (Corsi et al., 2017; Devereux, 2016; Kissoly et al., 2017; Morgan et al., 2007; Herrmann et al., 2018; Geday et al., 2016; Sumberg and SabatesWheeler, 2011). Linking smallholder farmers to processors is an important step in building a sustainable and efficient agricultural value chain. By establishing direct connections between farmers and processors, several benefits can be realized, including increased market access, improved efficiency, higher income for farmers, and better-quality products (Corsi et al., 2017; Devereux, 2016; Kissoly et al., 2017).

Farmers with access to credit

Access to credit or loans by smallholder farmers has a significant positive effect on their household food security status as several studies conducted across different African countries reported (Danso-Abbeam et al., 2018; Ogunniyi et al., 2021; Babatunde et al., 2007; Twongyirwe et al., 2019; Wossen et al., 2018; Omotayo et al., 2017; Adenagon et al., 2018). Access to credit is a critical factor in supporting the growth and development of smallholder farmers. Adequate credit enables farmers to invest in inputs, machinery, technology, and other resources necessary

		to improve productivity, expand their operations, and enhance their overall livelihoods (Wossen et al., 2018).
	As the issue of Boko Haram plays a decisive role for sampling you have to introduce in a better way.	<p>Sub-section 4.3.1 the boko haram has played a decisive role in selection of study area due to fears of kidnapping and threat to life. As reported on sun-section 4.3.1</p> <p>“The field survey was conducted in Nigeria's north-eastern region between November 2020 and February 2021. These regions were specifically chosen due to the high number of out-of-school children in the country because of Boko Haram kidnappings and attacks on school infrastructure (Bertoni et al., 2019; Abayomi, 2018), which have negatively impacted pupils' enrolment, attendance, and academic performance (UNICEF, 2020).</p> <p>For the selection of class teachers, a multi-stage sampling procedure was used. The first step was to purposively select a sample of three states from six in north-eastern Nigeria, namely Adamawa, Bauchi, and Gombe. These states were selected because they are less vulnerable to Boko Haram terrorist attacks in Nigeria's north-eastern region which possess a less risky environment for carrying the study. In the next stage, four local government areas from each of the three states were selected purposefully. This was done to avoid local government areas with a high rate of kidnappings and banditry”.</p>
	How is the causality of the dependent and independent variable in this case? I do not really understand. Is it the age of the teacher???	<p>Due to endogeneity concerns, a simple pre-post comparison or using post-treatment cross-sectional data may not be sufficient to conduct such an impact evaluation. As an example (1). Schools with longer SFP durations may differ from those with shorter SFP durations in a variety of ways as they may receive additional assistance from the government and/or the donor community such as deworming medications, meals during class, take-home rations and non-cash transfers in low-income areas that are equal to 10% to 15% of household income which can be a powerful motivator for parents to send their kids to school (WFP, 2018; Wall et al. 2022). When these are unobserved to the researchers, it may lead to an overestimation of the effect of SFP. (2). Only at the ward level was the school feeding sampling method fully randomized due to</p>

		political (conflict) constraints that lead to a purposive selection of study areas at several stages. (Please see Table 2)
	What is the reason for different proceedings for the beneficiary and non-beneficiary schools? Why do different samples seize?	Figure 5: Reason for different proceedings for the beneficiary and non-beneficiary schools sample size is because only few school share the similar socio-demographic characterisite with public primary school. Most of the non-beneficiary school are private school where parents of the pupils are in better financial position that using that can lead to bias. All schools selected were from rural areas with similar socioeconomic characteristics; the majority of pupils' parents are farmers who cultivate an average farm size of 2 hectares. The characteristics in terms of learning environment are the same between public schools and commentary schools. Consequently, the household characteristics of the pupils in both schools share similar patterns in terms of socio-demographics, farm size, crop type, and level of income.
	Could it make sense to provide information on items on knowledge, attitudes and practices more explicitly e.g. in a table? As this topic is very specific going n a bit more detail might be useful.	<p>Thank you so much for your suggestion; find below information on items on food safety knowledge, attitude and practices (Table 7, 8, and 9).</p> <p>Table 1: Questions the food handlers were asked on food safety knowledge.</p> <hr/> <p>List of questions</p> <hr/> <ol style="list-style-type: none"> 1. Food can be a source of disease infection? 2. Food from unhygienic and unclean sources might harbor the disease-causing organism? 3. Using expired food can't cause health disorders? 4. Some foodborne diseases/contamination can't cause death? 5. Unaccredited, off-brand and bulk products should not be purchased? 6. Humans can't be infected by unhygienic foodstuff? 7. Microorganisms are not frequently found in hand? 8. After touching raw foodstuff, touching cooked food without cleaning your hand causes the transfer of microorganisms? 9. The internal temperature of the refrigerator should be less than 5 degrees Celsius? 10. Leftover food should be stored in the refrigerator within two hours?

11. The taste of food should be checked with a different spoon?
12. Frequently used rags and laundry should not be kept out of the kitchen?

Table 2: Questions food vendors were asked on food safety attitude.

List of questions

1. Safe food handling is an important part of my job?
 - 2.
 3. Learning more about food safety is important to me?
 4. I believe that how I handle food relates to food safety?
 5. Raw food should be kept separate from cooked food?
 6. Using masks, protective gloves, caps and adequate clothing reduces the risk of food contamination?
 7. Improper storage of food may be hazardous to health?
 8. Sick staff should not be involved in food handling and food services?
 9. Staff with cut or open wounds on fingers or hands should not touch unwrapped food?
-

Table 3: Questions food handlers were asked on food safety practices.

List of questions

1. I pay concerned about hygienic sources of foodstuff
2. I frequent you avoid buying expired foodstuff
3. I use gloves when touching or distributing unwrapped food
4. I wash my hands before using gloves

		<ol style="list-style-type: none"> 5. I use protective clothing when touching or distributing of unwrapped foods 6. I use a mask when touching or distribution of unwrapped food 7. I do dispose food when the taste is change 8. I do sterilize my utensils before use 9. I do dispose food when it developed some odor
	<p>In this final section, you may summarize and condense “takeaway messages” of your thesis rather than address some minor issues that you didn’t present in the thesis so far. Please take some time to what you feel is the most important message of your investigation.</p>	<p>Section 7.6 – Policy implication of the study (page 101-102).</p> <p>The study's findings have significant policy implications. There is need to orient teachers on obesity and overweight in children. During data collection teachers wanted researcher to take measurement of overweight and obese children thinking is a sign of healthy living. As such special educational and training on food nutrition and hygiene should be introduced.</p> <p>The is needed to strengthen the weak linking between farmers links to caterers, farmers links to processors by all involving all stakeholders and introducing a monitoring and supervision system in the program. Similarly, government institution responsible for lending credit need to strengthen for strong collaboration and cross-sector. Smallholder farmers need more orientation and teaching on steps and procedure required in accessing funds under the homegrown school feeding program.</p> <p>As the finding from our studies revealed that prolonging the duration of the school feeding programme has a positive significant effect on pupils’ educational performance and nutritional status. Therefore, a policy to cooperate with smallholder farmers, parents, caterers and federal government that provide a long-term stable funding and budgeting will improve the outcome capacity of the programme.</p>
	<p>How about important questions that you across while applying your</p>	<p>Section 7.7 Suggestion for further studies</p>

	<p>research? These suggestions seem a bit weak in light of the outstanding importance of the topic you investigated.</p>	<ol style="list-style-type: none"> 1. Further studies should focus on evaluating the nutritional value and dietary diversity of the meals provided in school feeding programs. Conduct a comprehensive analysis of the meals' macronutrient and micronutrient content to determine if they meet the dietary needs of the students. Assess the variety of foods offered to ensure a well-balanced and diverse diet. 2. Explore strategies for ensuring the long-term sustainability and scalability of school feeding programs. Investigate funding models, cost-effectiveness, and potential partnerships with government agencies, NGOs, or private entities. Analyze successful case studies and best practices from different regions.
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The following comments were made by the second external examiner (**Prof. Salawu Ayemi Jibril**) during his review process. The modified thesis now includes the following changes as structured in the detailed description of how the comments were addressed in the main text of the thesis.

Dashboard: external review

External Reviewer	Comments	Section of the thesis where comments are addressed
Second external reviewer (Prof. Salawu .A. Jibril)		
01	<p>The following references are in the text but not found on the reference list:</p> <ol style="list-style-type: none"> 1. Nzimande, 2014 2. BBC News, 2013 3. NHGSFP, 2017 4. NBS, 2020 5. He, 2009 	All the references have been added to the list (please see reference section of the thesis)

6. Heyne et al., 2019
7. Carroll, 2010
8. Steward et al., 2008
9. Gottfried, 2014
10. Garry, 1996
11. Singh et al., 2014
12. Chen et al., 2020
13. Jamie et al., 2017
14. Weiss, 1995
15. Gizaw, 2019
16. WFP, 2012
17. Bigson et al., 2020
18. Rennie, 1975
19. Madaki and
Bavarova, 2021
20. Kwol et al., 2020
21. Madaki and
Bavarova, 2019
22. Guo et al., 2020
23. Peel, 2018
24. Gelli, 2019
25. Fortes et al., 2020
26. Woh et al., 2016
27. Griffith et al., 2017
28. CFIA, 1998
29. Timothy and
Richard, 2010
30. Cortese et al., 2016

	31. Neervoort et al., 2013	
02	The following abbreviations meaning have not be stated. BBC, GPA, IQs, DBM, NCD, VIF, LGA, FCS, FMHDS ICF and IPC.	Thank you for your observations, the following abbreviation meanings have been added to the abbreviation list, (see pages xv-xvii).
03	(Sub-section 1.4.3.) Empirical studies on the effect of SFP on pupils' school enrolment. Why not start with the global picture and then that of Nigeria will follow?	Thank you for your comment. The then sub-section 1.4.3 is now 2.1.1 sub-section and it now reads as follows. "There are a series of indicators for assessing output indicators in the impact assessment. The first indicator of assessing pupils' educational achievement is the school enrolment rate. The application of SFP could increase school enrolment since access to food influences the household's decision to send their pupils to a school that would not have otherwise been enrolled. In the perception of the household, the "net benefits of participating in the program exceed the gap between direct and opportunity cost of schooling and the expected benefit of schooling" which provides a stimulus for them to enrol their children (Adelman et al., 2008). The lack of food raises the need to work and generate income instead of going to school. Drake et al. (2012) found that one-tenth of the world's poorest children are less likely to participate in school because of the lack of income and the need to work, perpetuating intergenerational poverty cycles. Several studies have investigated the effect of SFP on children's school enrolment around the world with contradicting results. Some studies, for example, in Nigeria, Peru, Mali, Sri Lanka, Ghana, Bangladesh, and Ethiopia found an increase in the number of pupils enrolled in SFP

		<p>(Metwally et al., 2020; Taylor and Ogbogu, 2016; Tijjani et al., 2017; Jacoby et al., 1996; Masset and Gelli, 2013; He, 2009; Sulemana et al., 2013; Ahmed, 2004; Zenebe et al., 2018; Alderman and Bundy, 2012; Hinrichs, 2010). Other studies conducted in Kenya, Ethiopia, Laos, for example, found no evidence of an increase in the number of children enrolled in schools that implemented school feeding programs (Meme et al., 1998; Dheressa, 2011; Buttenhein et al., 2011). Other cases, show a positive effect of SFP. In Malawi's school feeding program increased the enrolment by 5% in a three-month time (WFP, 2006). Other research evidenced an increase of 14.2% for gross enrollment and 9.6% for net enrollment, respectively (Ahmed, 2004). However, the study did not control for other traits of households in the treatment area that might influence a household's decision on kids' enrolment. Adekunle and Ogbogu (2016) conducted a study in Nigeria on the effect of SFP and found that it increased primary school enrollment by 78.4%, student retention by 44.8%, regularity and punctuality by 58.6% increase and school attendance by 69% (see pages 7-8)".</p>
04	<p>Sub-section 1.5.3 Empirical studies on the effect of SFP on pupils' BMI-for-age. Repetition from pages 18 and 19. Please expunge an replace with something else.</p>	<p>Thank you for your suggestion. The then sub-section 1.5.3 is now 2.2.2 Sub-section and reads as follows; "There are many studies on the impact of school feeding programs on nutritional status, which have yielded different results. On the one hand, studies conducted by a large group of authors (Ayehu and Sahile, 2021; El Hioui et al., 2016; Zenebe et al., 2018; Bundy et al., 2018; Gelli et al., 2016; Neervoort et al., 2013) in various countries, namely Ghana, Ethiopia, the Lao PDR, Bangladesh, and Morocco found that the effect of school feeding programmes on pupils BMI-for-age was significantly high/positive. Studies conducted by Teo et al. (2021); Chen et al. (2020); Gelli et al. (2019); Anderson et al. (2018); Miyawaki et al. (2018), and others found a significant reduction in the beneficiaries' BMI-for-age compared to non-beneficiaries. The adverse impact of SFPs on body weight may result from the fact that nutrient imbalances may cause a tendency to be overweight and increased obesity in children, and the introduction of SFPs has the potential to provide needed proteins, vitamins, minerals, and other healthy micronutrients, which can result in a drop in the body weight. Another factor could be that many children have reported being denied breakfast (food) at home because they are expected to eat at school".</p>

05	Make it a table by having two lines at the top. Tables 7, 8 and 9.	Thank you so much. Tables 7, 8 and 9 have been modified in accordance with the examiners suggestion.
06	The percentage of R^2 is low on Table 29, why?	<p>Thank you for the question. Then Table 29 is now Table 27 and the reasons I have drawn for lower R^2 is as follows;</p> <p>Nonlinear relationship: since a linear regression assumes a linear relationship between the predictor variables and the response variable. If the relationship experience a nonlinear, a linear regression model may not capture the underlying pattern effectively, resulting in a low R-squared value.</p> <p>Missing relevant variables: Perhaps an important predictor variables were omitted from the regression model, this may led the model not capture all the relevant information needed to explain the variation in the response variable. This omission can lead to a low R-squared value.</p> <p>High variability or noise in the data: If the response variable has high variability or is affected by a large amount of random noise, it can result in a weaker relationship with the predictor variables. This can lead to a low R-squared value, indicating that the linear regression model explains only a small proportion of the total variability in the data</p>
07	Merge with the previous paragraph to avoid a one-sentence paragraph.	Thank you, the paragraph have been merged and it read as follows; “A linear regression analysis was performed to investigate factors influencing pupils' nutritional status, using DDS, BMI-for-age, and Height-for-age index as proxies for measuring nutritional status among pupils. In addition, a robust check analysis on the effects of the SFP on pupils' nutritional status was conducted by analyzing the average treatment effect on the treated (ATT) pupils using propensity score matching (PSM), inverse probability weighted adjusted regression (IPWRA) and endogenous switching regression (ESR). The analyses adopted demonstrated that SFP had a significant positive effect on DDS and Height-for-age index, implying that the SFP improved pupil nutritional status. However, the SFP has a negative effect on pupils' BMI-for-age due to the

		SFP contribution to attaining a balanced diet, which helps reduce the propensity to become overweight among program beneficiaries. (see page 98)".
08	Merge with the first paragraph to avoid a one-sentence paragraph. Page 102	Thank you, the paragraph has been merged and it read as follows; "In further studies, it is necessary to conduct a baseline study for the 'pre-operation exposure' condition for the set of indicators that will be used to assess the achievement of the outcomes (household food security status, pupils' nutritional status among others) and the impact expressed in the program's logical framework. These will allow a researcher to compare the condition of the same indicators at various points during the school feeding program's implementation (mid-term evaluation) and post-operation implementation (final evaluation). In future research, it is important to conduct a study on the proximate analysis of food menus offered to the children at school in order to assess the nutritional level of the food in terms of diversity and caloric content and estimate the impact on pupils' performance in education".

The following comments were made by the second external examiner (**Associate Prof. Edvin Zhllina**) during his review process. The modified thesis now includes the following changes as structured in the detailed description of how the comments were addressed in the main text of the thesis.

Dashboard: external review

External Reviewer	Comments	Section of the thesis where comments are addressed
Second external reviewer (Associate Prof. Edvin Zhllina)		
01	Reduce the number of cited sources. Be careful because the number of references in the list is very high. There	Thank you for your suggestion; The number of citation have been carefully reduced most especially the old references have been expunged.

	is nothing bad but you can use the other resources and this review in your papers in the future.	
02	What is the importance of this question. Just not clear whya for a food vendor knowing this is important.An is really true? I dont kno if is true that eating outdated food doesnt create health disorders	The questions is correct “Using expired food can't cause health disorders?” the idea is to see if food vendors can go for the correct answer.
	Since limitations are the same for the three groups of results you can put it only once in the end	The following are limitations in the study of school feeding program; <ol style="list-style-type: none"> 1. The lack of baseline and recall data on pupils' household demographic information was a limitation of the study. As a result, further research needs to incorporate pupil’s household demographic information which will provide more robust and reliable data in the impact assessment of the SFP, given the fact that parental educational qualification, household income, and food security status have a significant effect on determining pupils' school enrolment, attendance, and performance. 2. School feeding programs are implemented in diverse contexts, including different countries, regions, and cultural settings. The effectiveness of a program can be influenced by local factors such as infrastructure, availability of resources, cultural norms, and community engagement. Therefore, findings from one context may not be directly applicable to another, limiting the generalizability of the results. 3. Availability of high-quality data, especially longitudinal data, can be a challenge in some settings. Limited resources, data collection constraints, or incomplete records can hinder the accuracy and comprehensiveness of the analysis.

		<p>4. Our studies focus on short-term outcomes and may not capture the long-term effects of school feeding programs. Longer-term evaluations are needed to assess the sustained impact on educational outcomes, nutritional status, and health outcomes.</p>
	<p>In addition in the paper I rememebr the study contribite also on the worldwide literature. For instance the duration of SFP effect was rarely found.</p>	<p>Thank you for your suggestion, find below some contribution this study will provide to global body of literature,</p> <ol style="list-style-type: none"> 1. Research on school feeding programs can provide policymakers with robust evidence to support the development and improvement of policies related to child nutrition, education, and public health. By examining the outcomes and impact of these programs, policymakers can make informed decisions that lead to effective interventions. 2. Through rigorous studies, researchers on duration of school feeding program can identify best practices, successful models, and effective strategies for designing and implementing the programs. This knowledge can be shared with program managers and implementers to improve the effectiveness, efficiency, and scalability of existing programs or to guide the development of new initiatives. 3. School feeding programs are implemented in various countries and contexts worldwide. Research findings from different regions can be shared globally, leading to a broader understanding of the challenges and opportunities in implementing such programs. This knowledge sharing facilitates cross-country comparisons, encourages the exchange of best practices, and fosters international collaboration to address common issues related to child nutrition and education. 4. Research on school feeding programs duration can contribute to capacity building efforts, particularly in low- and middle-income countries. By involving local researchers and institutions in the study design, data collection, and analysis process, research projects can help strengthen research skills, build local expertise, and promote sustainable solutions tailored to specific contexts.